1565 MacArthur Blvd. Cost Mesa, CA 92626 714.431.4100 Fax 714.825.0685



September 3, 2004

Mr. Roger Baker City Planner CITY OF BURBANK 275 East Olive Avenue Burbank, California 91502

Clayton Project No. 80-98191.01

Subject: Status Report of Vapor Extraction System Operation - Lockheed-Martin

B-1 Site – December 10, 2003 through August 18, 2004

Dear Mr. Baker:

Clayton Group Services, Inc. (Clayton) has prepared the following status report for the Vapor Extraction System (VES) operation at Lockheed-Martin B-1 Site for the period between December 10, 2003 and August 18, 2004. It includes the following items:

- Background
- Clayton Field Activities
- Results of Laboratory Analysis
- Health Risk Assessment Calculations
- Conclusions

#### BACKGROUND

Alton Geoscience conducted a "Phase I" and "Phase II" of VES effluent sampling and health risk assessment for the Lockheed-Martin B-1 facility. Phase I consisted of twelve weekly health risk reports based on samples collected between September 2, 1997 and February 9, 1998. Phase II included twelve bi-weekly health risk assessments based on samples collected between February 16, 1998 and September 9, 1998. Phase III consisted of monthly sampling between October and December 1998.



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Phase IV of the VES effluent sampling consists of VES effluent sample acquisition, laboratory analyses, and health risk assessments to be performed once per quarter for the remainder of the project. The first and second quarterly health risk assessments were provided by Alton in reports dated January 18, 1999 and May 24, 1999, respectively.

Clayton subsequently has conducted quarterly sampling of the units and has routinely reported the results. These reports were issued as follows:

- November 23, 1999, which addressed the temporary shutdown of the system on October 14, 1999 for rebound testing;
- March 13, 2000, for the period following restart of the system;
- May 16, 2000 for the period through March 2000;
- March, July 12, 2000 for the period through June 2000;
- November 17, 2000, for the period through September 2000;
- February 22, 2001, for the period through January 2001;
- May 31, 2001, for the period through April 2001;
- August 21, 2001, for the period through August 5, 2001;
- November 12, 2001 for the period through October 19, 2001;
- March 29, 2002 for the period through January 28, 2002;
- June 6, 2002 for the period through April 29, 2002;
- August 23, 2002 for the period through July 26, 2002; and,
- January 8, 2003 for the period through October 30, 2003.
- March 4, 2003 for the period through February 3, 2004
- January 7, 2004 for the period through December 9 2003 (2 reports issued)

As a result of the rebound test that began on September 4, 2002 (initial shutdown) through the month of December, the VES was restarted on January 29, 2003. Based on



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rebound test results, Earth Tech personnel concluded that additional vapor extraction is necessary. Duration of run time is pending future sampling results.

#### **CLAYTON FIELD ACTIVITIES**

On August 18, 2004 personnel from Clayton met with Earth Tech personnel to conduct sampling of air emissions at the Lockheed-Martin B-1 Site VES. Clayton and Earth Tech personnel each collected an exhaust sample using an evacuated Summa canister, connected via a disposable Teflon® tube to the VES unit's sampling port.

During the sampling period, the exhaust flow rate was 748 scfm. The two stack analyzers monitoring volatile organic compound (VOC) concentration showed good correlation with readings of 2.28 and 2.41ppm.. The VOC emission rate readings were within acceptable operating conditions for the VES. The 15-minute average VOC emission rate indicated at the time was 1.0752 lbs/day, while the 24-hour average value was 1.0249 lbs/day. These values were below the calculated value of 1.876 lb/day, based on the analytical data.

The sample collected by Clayton was delivered to Air Toxics Ltd. in Folsom, California under chain of custody control for analysis by gas-chromatograph/mass spectrometry (GS/MS) in accordance with EPA Method TO-15.

#### RESULTS OF LABORATORY ANALYSES

The results from the TO-15 analysis of the sample taken on August 18, 2004 indicated that five (5) compounds were present in concentrations above detection limits. Following are a list of these compounds and the concentrations indicated by the analysis:

Compound	Concentration (ppmv) <sup>1</sup>
1,1-Dichloroethene (DCE)	0.013
Freon 113 (1,1,2-Trichloro- 1,2,2-trifluoro- ethane)	0.026
1,1,1- Trichloroethane	0.015
Trichloroethene (TCE)	2.400
Tetrachloroethene (Perchloroethylene or PCE))	2.100

1 ppmv = parts per million by volume



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These results reflect a slight increase in the total VOC concentration but with a decrease in the number of constituents detected. Overall the total VOC concentration range remains at low levels relative to the historical trend.

Using the analytical data, an overall VOC emission rate of 1.876 lb/day was calculated. This figure is somewhat larger than the 24-hour average VOC reading provided by the organic vapor monitoring system. However, the calculated VOC emission levels are well below the Conditional Use Permit (CUP) limit of 9.8 pounds per day. These results, along with the previous calculated total VOC emissions for the unit, were plotted on Figure 1. Vinyl chloride was not detected in the sample taken. Therefore, its CUP limit of 0.14 pounds per day was not exceeded.

#### HEALTH RISK ASSESSMENT CALCULATIONS

In accordance with the CUP, the stack concentrations of each constituent and the exhaust flow rates were used to calculate the excess cancer risk resulting from operation of the VES. The first risk calculation was to determine the risk if the unit was operated for a lifetime period of 70 years, evaluating the risk to both workers and local residents for those chemicals specified in SCAQMD Rule 1401, as adopted at the time the unit was permitted. The second risk calculation was to determine the risk to both workers and local residents for the life of the project (the 8.5 year operating period), for all detected chemicals for which carcinogenic risk factors are available.

The resulting cancer risk calculations for both conditions indicated an acceptable Maximum Individual Cancer Risk (MICR) significantly less than one in one million. The results from these calculations, along with the MICR results from previous calculations for the unit, are presented on Figures 2 and 3, for 70 year and 8.5 year calculations respectively.

#### **CONCLUSIONS**

Based on the results of the information gathered and samples taken on February 3, 2003, the following conclusions can be made:

• The current result of 1.876 lbs/day is evidence that a rebound has occurred. Although the overall VOC emission rate has not been this comparable since August of 2001, it remains well below the CUP limit 9.8 pounds per day. Evidently, the residual contaminants remaining in the subsurface are higher than previously expected resulting in additional VES operation.



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• Since vinyl chloride was not detected, its CUP limit of 0.14 pounds per day was not exceeded. Excess cancer risks (MICR) were less than one in one million for workers and local residents, using both 70-year lifetime and 8.5-year operating period risk calculations.

If you have any questions or require additional information regarding this status report, please contact me at (714) 431-4157.

Sincerely,

Martin L. McClintock, P.E. No. 5025

Martin Z. Mc Clintock

Project Engineer

**Environmental Services** 

Attachments: Figure 1 - Daily VOC Emissions

Figure 2 - Human Health Risk (70 Year Lifetime)

Figure 3 - Human Health Risk (8.5 Year Operating Period)

Laboratory Report

cc: Ms. Stacey Ebiner, South Coast Air Quality Management District George Illes, South Coast Air Quality Management District

# FIGURE 1 - DAILY VOC EMISSIONS LOCKHEED B-1 VES Independent Monitoring Data

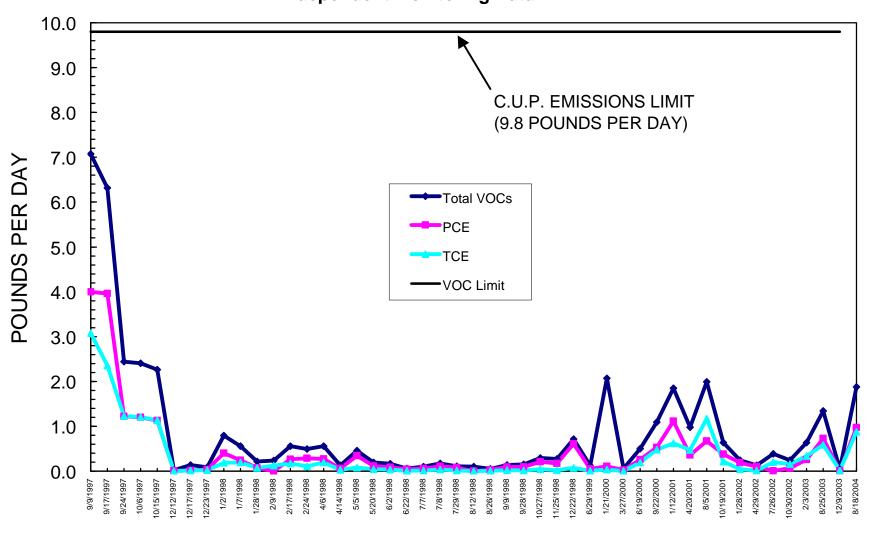
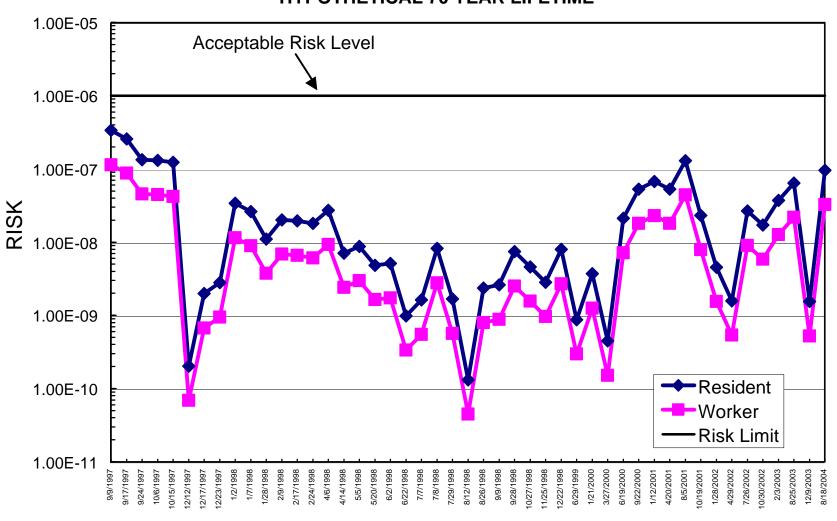
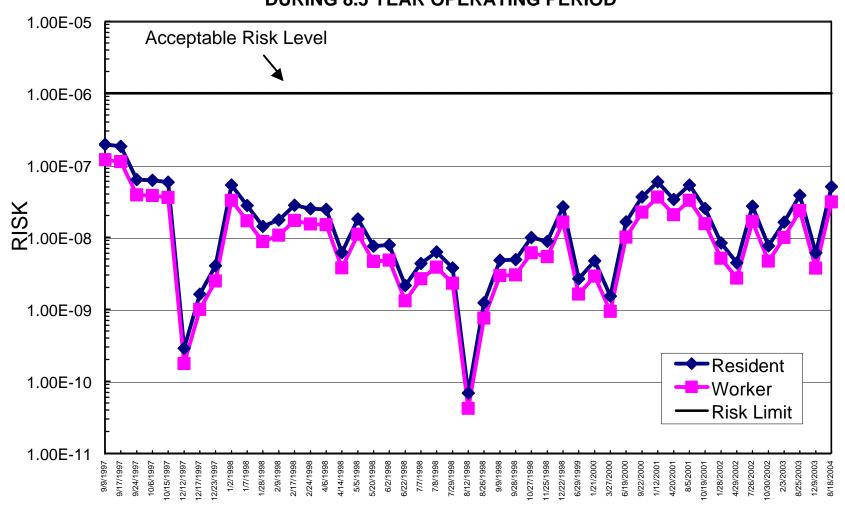


FIGURE 1

#### FIGURE 2 - HUMAN HEALTH RISK LOCKHEED B-1 VES SCAQMD RULE 1401 CHEMICALS HYPOTHETICAL 70 YEAR LIFETIME



#### FIGURE 3 - HUMAN HEALTH RISK LOCKHEED B-1 VES DURING 8.5 YEAR OPERATING PERIOD





STL Los Angeles 1721 South Grand Avenue Santa Ana, CA 92705

Tel: 714 258 8610 Fax: 714 258 0921 www.stl-inc.com

August 26, 2004

STL LOT NUMBER: E4H200296

Gustavo Valdivia Clayton Group Services Inc 1565 MacArthur Blvd Costa Mesa, CA 92704

Dear Mr. Valdivia,

This report contains the analytical results for the sample received under chain of custody by STL Los Angeles on August 18, 2004. This sample is associated with your City of Burbank project.

STL Los Angeles certifies that the test results provided in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is E87652.

Any matrix related anomaly is footnoted within the report. Historical control limits for the LCS are used to define the estimate of uncertainty for a method. All applicable quality control procedures met method-specified acceptance criteria.

Preliminary results were sent via facsimile on August 26, 2004.

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report contains pages.



If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Marisol Tabirara Project Manager

Atomial Tolaine

cc: Project File



# 1565 Mac Arthur Blvd. Costa Mesa, CA 92626 Tel (714) 431-4100 Clayton GROUP SERVICES

Fax (714) 825-0685

# CUSTODY RECORD CHAIN OF

36	ON.	Fax	Electronic
E4H 200296	Turn Around Time Rush Authorized? YES	Results Delivery: Phone	Hardcopy 🗔

	ANALYSIS REQUESTED				_	/ Remarks												Date Time: 5-18-0 4 11 00	Date/Time: 8/18/04 1300
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T.	ND RESULTS AND INVOICE TO:	ject Manager: (ζ)∪ς	cphone:	X:		Number	-1-WES-817041										Collected by: (Print):	CHMIN Relinguished by:	

Distribution:

Sample Condition Upon Receipt:

Method of Shipment:

TUSTODY

White = Project Manager

Yellow = Laboratory

[] Acceptable

Pink = (Jient Other (explain)

Gold = Project File

Datc/Time:

Received at Lab by:



#### CANISTER FIELD DATA RECORD

CLIENT: CLAYIM GROUP S. CANISTER SERIAL #: 93253  DATE CLEANED: 8.6.04B  CLIENT SAMPLE #:  SITE LOCATION:	Duration o	of comp. :	nrs. / mins. ml/min		
READING	TIME		inches Hg) ESS. (psig)	DATE	INITIALS
INITIAL VACUUM CHECK		30	<b>D</b> "	8.16.00	I RB
INITIAL FIELD VACUUM					
FINAL FIELD READING					
LAB	BORATORY CAN	NSTER PR	RESSURIZA	ATION	
INITIAL VACUUM (PSIA)				8-23-0	
FINAL PRESSURE (PSIA)		20	,45	8-23-0	70
Pressurization Gas:					
COMMENTS:				COMPOSITE TIME (HOURS)	FLOW RATE RANGE (ml/min)
				15 Min.	316 – 333
				30 Min.	158 – 166.7 79.2 – 83.3
				1 2	79.2 – 83.3 39.6 – 41.7
				4	19.8 – 20.8
				6	13.2 – 13.9
				8	9.9 10.4
				10	7.92 – 8.3
				12	6.6 – 6.9
				24	3.5 - 4.0

E4H200296

N:\COI\DOCS\CANISTER FIELD DATA RECORD(012103).doc



## Analytical Report

#### **ANALYTICAL REPORT**

PROJECT NO. 8098191.00

City of Burbank

Lot #: E4H200296

Gustavo Valdivia

Clayton Group Services Inc

SEVERN TRENT LABORATORIES, INC.

Marisol Tabirara Project Manager

August 26, 2004

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#### **EXECUTIVE SUMMARY - Detection Highlights**

#### E4H200296

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
B-1-VES-81704 08/18/04 10:20 001				
1,1-Dichloroethene	13	13	ppb(v/v)	EPA-21 TO-14A
1,1,2-Trichloro- 1,2,2-trifluoroethane	26	13	ppb(v/v)	EPA-21 TO-14A
1,1,1-Trichloroethane	15	13	ppb(v/v)	EPA-21 TO-14A
Trichloroethene	2400	13	ppb(v/v)	EPA-21 TO-14A
Tetrachloroethene	2100	13	ppb(v/v)	EPA-21 TO-14A

#### **ANALYTICAL METHODS SUMMARY**

#### E4H200296

PARAMETER ANALYTICAL METHOD

Volatile Organics by TO-14A

EPA-21 TO-14A

#### References:

"Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", Second Edition, EPA/625/R-96/010b, January 1999

8

#### **SAMPLE SUMMARY**

#### E4H200296

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
GNLLE	001	B-1-VES-81704	08/18/04	10:20

9

#### NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

#### CLAYTON GROUP SERVICES INC

Client Sample ID: B-1-VES-81704

#### GC/MS Volatiles

Lot-Sample #...: E4H200296-001 Work Order #...: GNLLE1AC Matrix...... AIR

 Date Sampled...:
 08/18/04
 10:20
 Date Received...
 08/18/04

 Prep Date.....:
 08/23/04
 Analysis Date...
 08/23/04

 Prep Batch #...:
 4238471
 Analysis Time...
 15:44

Dilution Factor: 6.53

Analyst ID....: 101605 Instrument ID..: MSB

Method..... EPA-21 TO-14A

PARAMETER
Dichlorodifluoromethane
Chloromethane ND 26 ppb (v/v)  1,2-Dichloro- ND 13 ppb (v/v)  1,1,2,2-tetrafluoroethane Vinyl chloride ND 13 ppb (v/v)  Bromomethane ND 13 ppb (v/v)  Chloroethane ND 26 ppb (v/v)  Trichlorofluoromethane ND 13 ppb (v/v)  Trichloroethene 13 ppb (v/v)  1,1-Dichloroethene 13 ppb (v/v)  Carbon disulfide ND 65 ppb (v/v)  1,1,2-Trichloro- 26 13 ppb (v/v)  1,2,2-trifluoroethane Acetone ND 65 ppb (v/v)  Methylene chloride ND 13 ppb (v/v)  1,1-Dichloroethene ND 13 ppb (v/v)  1,1-Dichloroethane ND 13 ppb (v/v)  1,1-Dichloroethane ND 13 ppb (v/v)  Vinyl acetate ND 65 ppb (v/v)  Vinyl acetate ND 65 ppb (v/v)  Cis-1,2-Dichloroethene ND 13 ppb (v/v)  2-Butanone (MEK) ND 65 ppb (v/v)  1,1,1-Trichloroethane 15 13 ppb (v/v)  Carbon tetrachloride ND 13 ppb (v/v)  1,1,1-Trichloroethane ND 13 ppb (v/v)  Trichloroethane ND 13 ppb (v/v)  Carbon tetrachloride ND 13 ppb (v/v)  Trichloroethene ND 13 ppb (v/v)
1,2-Dichloro- 1,1,2,2-tetrafluoroethane  Vinyl chloride ND 13 ppb(v/v) Bromomethane ND 13 ppb(v/v) Chloroethane ND 13 ppb(v/v) Trichlorofluoromethane ND 13 ppb(v/v) Trichloroethene 13 13 ppb(v/v) 1,1-Dichloroethene 13 13 ppb(v/v) 1,1,2-Trichloro- 26 13 ppb(v/v) 1,2,2-trifluoroethane Acetone ND 65 ND 65 ppb(v/v) Methylene chloride ND 13 ppb(v/v) 1,1-Dichloroethene ND 13 ppb(v/v) 1,1-Dichloroethane ND 13 ppb(v/v) 1,1-Dichloroethane ND 13 ppb(v/v) Vinyl acetate ND 65 ppb(v/v) Vinyl acetate ND 65 ppb(v/v) Cis-1,2-Dichloroethene ND 13 ppb(v/v) Chloroform ND 13 ppb(v/v) 1,1-Trichloroethane ND 13 ppb(v/v) 1,1,1-Trichloroethane ND 13 ppb(v/v) 1,1,1-Trichloroethane ND 13 ppb(v/v) Trichloroethane ND 13 ppb(v/v) Carbon tetrachloride ND 13 ppb(v/v) Trichloroethane ND 13 ppb(v/v) Trichloropropane ND 13 ppb(v/v) Dis-1,3-Dichloropropene
1,1,2,2-tetrafluoroethane
Vinyl chloride         ND         13         ppb(v/v)           Bromomethane         ND         13         ppb(v/v)           Chloroethane         ND         26         ppb(v/v)           Trichlorofluoromethane         ND         13         ppb(v/v)           1,1-Dichloroethene         13         13         ppb(v/v)           1,2-Trichloro-         26         13         ppb(v/v)           1,2,2-trifluoroethane         ND         65         ppb(v/v)           Methylene chloride         ND         13         ppb(v/v)           Methylene chloride         ND         13         ppb(v/v)           trans-1,2-Dichloroethene         ND         13         ppb(v/v)           1,1-Dichloroethane         ND         13         ppb(v/v)           Vinyl acetate         ND         65         ppb(v/v)           Cis-1,2-Dichloroethene         ND         13         ppb(v/v)           Chloroform         ND         13         ppb(v/v)           Chloroform         ND         13         ppb(v/v)           1,1-Trichloroethane         15         13         ppb(v/v)           Carbon tetrachloride         ND         13         ppb(v/v)
Bromomethane
Chloroethane         ND         26         ppb (v/v)           Trichlorofluoromethane         ND         13         ppb (v/v)           1,1-Dichloroethene         13         13         ppb (v/v)           Carbon disulfide         ND         65         ppb (v/v)           1,1,2-Trichloro-         26         13         ppb (v/v)           1,2,2-trifluoroethane         ND         65         ppb (v/v)           Methylene chloride         ND         13         ppb (v/v)           Methylene chloride         ND         13         ppb (v/v)           trans-1,2-Dichloroethene         ND         13         ppb (v/v)           trans-1,2-Dichloroethane         ND         13         ppb (v/v)           Vinyl acetate         ND         13         ppb (v/v)           Vinyl acetate         ND         65         ppb (v/v)           Cis-1,2-Dichloroethene         ND         13         ppb (v/v)           2-Butanone (MEK)         ND         65         ppb (v/v)           Chloroform         ND         13         ppb (v/v)           Chloroform         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v) </td
Trichlorofluoromethane ND 13 ppb (v/v)  1,1-Dichloroethene 13 13 ppb (v/v)  Carbon disulfide ND 65 ppb (v/v)  1,1,2-Trichloro- 26 13 ppb (v/v)  1,2,2-trifluoroethane  Acetone ND 65 ppb (v/v)  Methylene chloride ND 13 ppb (v/v)  trans-1,2-Dichloroethene ND 13 ppb (v/v)  1,1-Dichloroethane ND 13 ppb (v/v)  Vinyl acetate ND 65 ppb (v/v)  cis-1,2-Dichloroethene ND 13 ppb (v/v)  2-Butanone (MEK) ND 65 ppb (v/v)  Chloroform ND 13 ppb (v/v)  1,1-Trichloroethane 15 13 ppb (v/v)  1,1,1-Trichloroethane ND 13 ppb (v/v)  Carbon tetrachloride ND 13 ppb (v/v)  Benzene ND 13 ppb (v/v)  1,2-Dichloroethane ND 13 ppb (v/v)  Trichloroethene 2400 13 ppb (v/v)  Trichloroethene ND 13 ppb (v/v)  Bromodichloromethane ND 13 ppb (v/v)  Bromodichloromethane ND 13 ppb (v/v)  Bromodichloromethane ND 13 ppb (v/v)  Cis-1,3-Dichloropropene ND 13 ppb (v/v)  4-Methyl-2-pentanone ND 65 ppb (v/v)
1,1-Dichloroethene       13       13       ppb (v/v)         Carbon disulfide       ND       65       ppb (v/v)         1,1,2-Trichloro-       26       13       ppb (v/v)         1,2,2-trifluoroethane       ND       65       ppb (v/v)         Acetone       ND       65       ppb (v/v)         Methylene chloride       ND       13       ppb (v/v)         trans-1,2-Dichloroethene       ND       13       ppb (v/v)         1,1-Dichloroethane       ND       13       ppb (v/v)         Vinyl acetate       ND       65       ppb (v/v)         cis-1,2-Dichloroethene       ND       13       ppb (v/v)         2-Butanone (MEK)       ND       65       ppb (v/v)         Chloroform       ND       13       ppb (v/v)         1,1,1-Trichloroethane       15       13       ppb (v/v)         Carbon tetrachloride       ND       13       ppb (v/v)         Benzene       ND       13       ppb (v/v)         1,2-Dichloroethane       ND       13       ppb (v/v)         Trichloroethene       2400       13       ppb (v/v)         1,2-Dichloropropane       ND       13       ppb (v/v)      <
Carbon disulfide         ND         65         ppb (v/v)           1,1,2-Trichloro-         26         13         ppb (v/v)           1,2,2-trifluoroethane         ND         65         ppb (v/v)           Acetone         ND         13         ppb (v/v)           Methylene chloride         ND         13         ppb (v/v)           trans-1,2-Dichloroethene         ND         13         ppb (v/v)           1,1-Dichloroethane         ND         13         ppb (v/v)           vinyl acetate         ND         65         ppb (v/v)           cis-1,2-Dichloroethene         ND         13         ppb (v/v)           2-Butanone (MEK)         ND         65         ppb (v/v)           Chloroform         ND         13         ppb (v/v)           1,1-Trichloroethane         15         13         ppb (v/v)           Carbon tetrachloride         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (
1,1,2-Trichloro-         1,2,2-trifluoroethane         Acetone       ND       65       ppb (v/v)         Methylene chloride       ND       13       ppb (v/v)         Methylene chloride       ND       13       ppb (v/v)         trans-1,2-Dichloroethene       ND       13       ppb (v/v)         1,1-Dichloroethane       ND       65       ppb (v/v)         vinyl acetate       ND       65       ppb (v/v)         cis-1,2-Dichloroethene       ND       13       ppb (v/v)         2-Butanone (MEK)       ND       65       ppb (v/v)         Chloroform       ND       13       ppb (v/v)         1,1-Trichloroethane       15       13       ppb (v/v)         Carbon tetrachloride       ND       13       ppb (v/v)         Benzene       ND       13       ppb (v/v)         1,2-Dichloroethane       ND       13       ppb (v/v)         Trichloroethene       2400       13       ppb (v/v)         1,2-Dichloropropane       ND       13       ppb (v/v)         Bromodichloromethane       ND       13       ppb (v/v)         Cis-1,3-Dichloropropene       ND       13       ppb (v/
1,2,2-trifluoroethane
Acetone         ND         65         ppb(v/v)           Methylene chloride         ND         13         ppb(v/v)           trans-1,2-Dichloroethene         ND         13         ppb(v/v)           1,1-Dichloroethane         ND         13         ppb(v/v)           Vinyl acetate         ND         65         ppb(v/v)           cis-1,2-Dichloroethene         ND         13         ppb(v/v)           2-Butanone (MEK)         ND         65         ppb(v/v)           Chloroform         ND         13         ppb(v/v)           1,1,1-Trichloroethane         15         13         ppb(v/v)           Carbon tetrachloride         ND         13         ppb(v/v)           Benzene         ND         13         ppb(v/v)           1,2-Dichloroethane         ND         13         ppb(v/v)           Trichloroethene         2400         13         ppb(v/v)           Bromodichloromethane         ND         13         ppb(v/v)           cis-1,3-Dichloropropene         ND         13         ppb(v/v)           4-Methyl-2-pentanone         ND         65         ppb(v/v)
Acetone         ND         65         ppb(v/v)           Methylene chloride         ND         13         ppb(v/v)           trans-1,2-Dichloroethene         ND         13         ppb(v/v)           1,1-Dichloroethane         ND         13         ppb(v/v)           Vinyl acetate         ND         65         ppb(v/v)           cis-1,2-Dichloroethene         ND         13         ppb(v/v)           2-Butanone (MEK)         ND         65         ppb(v/v)           Chloroform         ND         13         ppb(v/v)           1,1,1-Trichloroethane         15         13         ppb(v/v)           Carbon tetrachloride         ND         13         ppb(v/v)           Benzene         ND         13         ppb(v/v)           1,2-Dichloroethane         ND         13         ppb(v/v)           Trichloroethene         2400         13         ppb(v/v)           Bromodichloromethane         ND         13         ppb(v/v)           cis-1,3-Dichloropropene         ND         13         ppb(v/v)           4-Methyl-2-pentanone         ND         65         ppb(v/v)
trans-1,2-Dichloroethene         ND         13         ppb (v/v)           1,1-Dichloroethane         ND         13         ppb (v/v)           Vinyl acetate         ND         65         ppb (v/v)           cis-1,2-Dichloroethene         ND         13         ppb (v/v)           2-Butanone (MEK)         ND         65         ppb (v/v)           Chloroform         ND         13         ppb (v/v)           1,1-Trichloroethane         15         13         ppb (v/v)           Carbon tetrachloride         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           Trichloroethene         2400         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
trans-1,2-Dichloroethene         ND         13         ppb(v/v)           1,1-Dichloroethane         ND         13         ppb(v/v)           Vinyl acetate         ND         65         ppb(v/v)           cis-1,2-Dichloroethene         ND         13         ppb(v/v)           2-Butanone (MEK)         ND         65         ppb(v/v)           Chloroform         ND         13         ppb(v/v)           1,1,1-Trichloroethane         15         13         ppb(v/v)           Carbon tetrachloride         ND         13         ppb(v/v)           Benzene         ND         13         ppb(v/v)           1,2-Dichloroethane         ND         13         ppb(v/v)           Trichloroethene         2400         13         ppb(v/v)           Bromodichloromethane         ND         13         ppb(v/v)           cis-1,3-Dichloropropene         ND         13         ppb(v/v)           4-Methyl-2-pentanone         ND         65         ppb(v/v)
1,1-Dichloroethane       ND       13       ppb(v/v)         Vinyl acetate       ND       65       ppb(v/v)         cis-1,2-Dichloroethene       ND       13       ppb(v/v)         2-Butanone (MEK)       ND       65       ppb(v/v)         Chloroform       ND       13       ppb(v/v)         1,1,1-Trichloroethane       15       13       ppb(v/v)         Carbon tetrachloride       ND       13       ppb(v/v)         Benzene       ND       13       ppb(v/v)         1,2-Dichloroethane       ND       13       ppb(v/v)         1,2-Dichloropropane       ND       13       ppb(v/v)         Bromodichloromethane       ND       13       ppb(v/v)         cis-1,3-Dichloropropene       ND       13       ppb(v/v)         4-Methyl-2-pentanone       ND       65       ppb(v/v)
Vinyl acetate         ND         65         ppb (v/v)           cis-1,2-Dichloroethene         ND         13         ppb (v/v)           2-Butanone (MEK)         ND         65         ppb (v/v)           Chloroform         ND         13         ppb (v/v)           1,1,1-Trichloroethane         15         13         ppb (v/v)           Carbon tetrachloride         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
cis-1,2-Dichloroethene       ND       13       ppb(v/v)         2-Butanone (MEK)       ND       65       ppb(v/v)         Chloroform       ND       13       ppb(v/v)         1,1,1-Trichloroethane       15       13       ppb(v/v)         Carbon tetrachloride       ND       13       ppb(v/v)         Benzene       ND       13       ppb(v/v)         1,2-Dichloroethane       ND       13       ppb(v/v)         Trichloroethene       2400       13       ppb(v/v)         1,2-Dichloropropane       ND       13       ppb(v/v)         Bromodichloromethane       ND       13       ppb(v/v)         cis-1,3-Dichloropropene       ND       13       ppb(v/v)         4-Methyl-2-pentanone       ND       65       ppb(v/v)
Chloroform         ND         13         ppb (v/v)           1,1,1-Trichloroethane         15         13         ppb (v/v)           Carbon tetrachloride         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           Trichloroethene         2400         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
1,1,1-Trichloroethane         15         13         ppb (v/v)           Carbon tetrachloride         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           Trichloroethene         2400         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
Carbon tetrachloride         ND         13         ppb (v/v)           Benzene         ND         13         ppb (v/v)           1,2-Dichloroethane         ND         13         ppb (v/v)           Trichloroethene         2400         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
Carbon tetrachloride ND 13 ppb $(v/v)$ Benzene ND 13 ppb $(v/v)$ 1,2-Dichloroethane ND 13 ppb $(v/v)$ Trichloroethene 2400 13 ppb $(v/v)$ 1,2-Dichloropropane ND 13 ppb $(v/v)$ Bromodichloromethane ND 13 ppb $(v/v)$ cis-1,3-Dichloropropene ND 13 ppb $(v/v)$ 4-Methyl-2-pentanone ND 65 ppb $(v/v)$
1,2-Dichloroethane       ND       13       ppb (v/v)         Trichloroethene       2400       13       ppb (v/v)         1,2-Dichloropropane       ND       13       ppb (v/v)         Bromodichloromethane       ND       13       ppb (v/v)         cis-1,3-Dichloropropene       ND       13       ppb (v/v)         4-Methyl-2-pentanone       ND       65       ppb (v/v)
Trichloroethene         2400         13         ppb (v/v)           1,2-Dichloropropane         ND         13         ppb (v/v)           Bromodichloromethane         ND         13         ppb (v/v)           cis-1,3-Dichloropropene         ND         13         ppb (v/v)           4-Methyl-2-pentanone         ND         65         ppb (v/v)
1,2-DichloropropaneND13 $ppb(v/v)$ BromodichloromethaneND13 $ppb(v/v)$ cis-1,3-DichloropropeneND13 $ppb(v/v)$ 4-Methyl-2-pentanoneND65 $ppb(v/v)$
1,2-DichloropropaneND13 $ppb(v/v)$ BromodichloromethaneND13 $ppb(v/v)$ cis-1,3-DichloropropeneND13 $ppb(v/v)$ 4-Methyl-2-pentanoneND65 $ppb(v/v)$
Bromodichloromethane ND 13 ppb $(v/v)$ cis-1,3-Dichloropropene ND 13 ppb $(v/v)$ 4-Methyl-2-pentanone ND 65 ppb $(v/v)$
cis-1,3-Dichloropropene ND 13 ppb $(v/v)$ 4-Methyl-2-pentanone ND 65 ppb $(v/v)$
4-Methyl-2-pentanone ND 65 ppb(v/v)
(\$4T\$\TEXT)
(MIBK)
Toluene ND 13 ppb $(v/v)$
trans-1,3-Dichloropropene ND 13 ppb(v/v)
1,1,2-Trichloroethane ND 13 ppb $(v/v)$
Tetrachloroethene 2100 13 ppb (v/v)
2-Hexanone ND 65 $ppb(v/v)$
Dibromochloromethane ND 13 $ppb(v/v)$
1,2-Dibromoethane (EDB) ND 13 $ppb(v/v)$

(Continued on next page)

#### CLAYTON GROUP SERVICES INC

#### Client Sample ID: B-1-VES-81704

#### GC/MS Volatiles

Lot-Sample #...: E4H200296-001 Work Order #...: GNLLE1AC Matrix...... AIR

		REPORTING	<del>}</del>
PARAMETER	RESULT	LIMIT	UNITS
Chlorobenzene	ND	13	ppb(v/v)
Ethylbenzene	ND	13	ppb(v/v)
Xylenes (total)	ND	13	ppb(v/v)
Styrene	ND	13	ppb(v/v)
Bromoform	ND	13	ppb(v/v)
1,1,2,2-Tetrachloroethane	ND	13	ppb(v/v)
Benzyl chloride	ND	65	ppb(v/v)
4-Ethyltoluene	ND	13	ppb(v/v)
1,3,5-Trimethylbenzene	ND	13	ppb(v/v)
1,2,4-Trimethylbenzene	ND	13	ppb(v/v)
1,3-Dichlorobenzene	ND	13	ppb(v/v)
1,4-Dichlorobenzene	ND	13	ppb(v/v)
1,2-Dichlorobenzene	ND	13	ppb(v/v)
1,2,4-Trichloro-	ND	33	ppb(v/v)
benzene			
Hexachlorobutadiene	ND	26	ppb(v/v)

### SEVERN STL

QA/QC

#### QC DATA ASSOCIATION SUMMARY

#### E4H200296

Sample Preparation and Analysis Control Numbers

		ANALYTICAL	LEACH	PREP	
SAMPLE#	MATRIX	METHOD	BATCH #	BATCH #	MS RUN#
001	AIR	EPA-21 TO-14A		4238471	

#### METHOD BLANK REPORT

#### GC/MS Volatiles

Prep Date....: 08/23/04 Analysis Time..: 08:32

Analysis Date..: 08/23/04 Prep Batch #...: 4238471 Instrument ID..: MSB Dilution Factor: 1

Analyst ID....: 117751

		REPORTIN	G	
PARAMETER	RESULT	LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Chloromethane	ND	4.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloro-	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,2,2-tetrafluoroethane				
Vinyl chloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromomethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Chloroethane	ND	4.0	ppb(v/v)	EPA-21 TO-14A
Trichlorofluoromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1-Dichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Carbon disulfide	ND	10	ppb(v/v)	EPA-21 TO-14A
1,1,2-Trichloro-	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2,2-trifluoroethane				
Acetone	ND	10	ppb(v/v)	EPA-21 TO-14A
Methylene chloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
trans-1,2-Dichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1-Dichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Vinyl acetate	ND	10	ppb(v/v)	EPA-21 TO-14A
cis-1,2-Dichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
2-Butanone (MEK)	ND	10	ppb(v/v)	EPA-21 TO-14A
Chloroform	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,1-Trichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Carbon tetrachloride	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Benzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Trichloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichloropropane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromodichloromethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
cis-1,3-Dichloropropene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
4-Methyl-2-pentanone	ND	10	ppb (v/v)	EPA-21 TO-14A
(MIBK) Toluene	NTD.	2 0		777 01 MO 143
	ND	2.0	ppb (v/v)	EPA-21 TO-14A
trans-1,3-Dichloropropene	ND	2.0	ppb (v/v)	EPA-21 TO-14A
1,1,2-Trichloroethane	ND	2.0	ppb (v/v)	EPA-21 TO-14A
Tetrachloroethene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
2-Hexanone	ND	10	ppb(v/v)	EPA-21 TO-14A
Dibromochloromethane	ND	2.0	ppb (v/v)	EPA-21 TO-14A
1,2-Dibromoethane (EDB)	ND 	2.0	ppb (v/v)	EPA-21 TO-14A
Chlorobenzene	ND 	2.0	ppb (v/v)	EPA-21 TO-14A
Ethylbenzene	ND	2.0	ppb (v/v)	EPA-21 TO-14A
Xylenes (total)	ND	2.0	ppb(v/v)	EPA-21 TO-14A

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#### METHOD BLANK REPORT

#### GC/MS Volatiles

Client Lot #...: E4H200296 Work Order #...: GNXEV1AA Matrix...... AIR

		REPORTING		
PARAMETER	RESULT	LIMIT	UNITS	METHOD
Styrene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Bromoform	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	ND	2.0	ppb(v/v)	EPA-21 TO-14A
Benzyl chloride	ND	10	ppb(v/v)	EPA-21 TO-14A
4-Ethyltoluene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,3,5-Trimethylbenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2,4-Trimethylbenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,3-Dichlorobenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,4-Dichlorobenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2-Dichlorobenzene	ND	2.0	ppb(v/v)	EPA-21 TO-14A
1,2,4-Trichloro-	ND	5.0	ppb(v/v)	EPA-21 TO-14A
benzene				
Hexachlorobutadiene	ND	4.0	ppb(v/v)	EPA-21 TO-14A
NOTE(S):				

Calculations are performed before rounding to avoid round-off errors in calculated results.

#### LABORATORY CONTROL SAMPLE EVALUATION REPORT

#### GC/MS Volatiles

Client Lot #...: E4H200296 Work Order #...: GNXEV1AC-LCS Matrix...... AIR

LCS Lot-Sample#: M4H250000-471 GNXEV1AD-LCSD

Prep Date....: 08/23/04 Analysis Date..: 08/23/04
Prep Batch #...: 4238471 Analysis Time..: 07:16
Dilution Factor: 1 Instrument ID..: MSB

**Analyst ID....:** 117751

	PERCENT	RECOVERY	RPD	
PARAMETER	RECOVERY	LIMITS RPD	LIMITS	METHOD
1,1-Dichloroethene	104	(70 - 125)		BPA-21 TO-14A
	95	(70 - 125) 9.4	(0-20)	BPA-21 TO-14A
Methylene chloride	86	(75 - 120)		BPA-21 TO-14A
	87	(75 - 120) 0.57	(0-20)	EPA-21 TO-14A
Trichloroethene	85	(70 - 125)		EPA-21 TO-14A
	84	(70 - 125) 1.0	(0-20)	EPA-21 TO-14A
Toluene	93	(75 - 125)		EPA-21 TO-14A
	91	(75 - 125) 2.2	(0-20)	BPA-21 TO-14A
1,1,2,2-Tetrachloroethane	91	(65 - 130)		BPA-21 TO-14A
	92	(65 - 130) 0.78	(0-20)	EPA-21 TO-14A

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

#### LABORATORY CONTROL SAMPLE DATA REPORT

#### GC/MS Volatiles

Client Lot #...: E4H200296 Work Order #...: GNXEV1AC-LCS Matrix..... AIR

LCS Lot-Sample#: M4H250000-471 GNXEV1AD-LCSD

Prep Date....: 08/23/04 Analysis Date..: 08/23/04
Prep Batch #...: 4238471 Analysis Time..: 07:16
Dilution Factor: 1 Instrument ID..: MSB

**Analyst ID....:** 117751

	SPIKE	MEASURED		PERCENT		
PARAMETER	AMOUNT	AMOUNT	UNITS	RECOVERY	RPD	METHOD
1,1-Dichloroethene	59.2	61.7	ppb(v/v)	104		EPA-21 TO-14A
	59.2	56.1	ppb(v/v)	95	9.4	EPA-21 TO-14A
Methylene chloride	58.7	50.6	ppb(v/v)	86		EPA-21 TO-14A
	58.7	50.9	ppb(v/v)	87	0.57	EPA-21 TO-14A
Trichloroethene	59.5	50.7	ppb(v/v)	85		EPA-21 TO-14A
	59.5	50.1	ppb(v/v)	84	1.0	<b>EPA-21 TO-14A</b>
Toluene	55.7	51.7	ppb (v/v)	93		EPA-21 TO-14A
	55.7	50.6	ppb(v/v)	91	2.2	EPA-21 TO-14A
1,1,2,2-Tetrachloroethane	55.4	50.6	ppb(v/v)	91		BPA-21 TO-14A
	55.4	51.0	ppb(v/v)	92	0.78	EPA-21 TO-14A

#### NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters